289

SERVICE MANUAL

FISHER

CR-7000
(BLACK)

Stereo Cassette Tape Deck
(EUROPE)

THE FIRST NAME IN HIGH FIDELITY

789

SPECIFICATIONS

Tape	CrO_2, FeCr and Normal tape
Recording system	AC bias, 1/4 track stereo
Erasing system	AC erasing, 1/2 track
Tape speed	1-7/8 ips. (4.75 cm/sec.)
Recording time	60 min. (C-60 cassette tape)
Rewind & Fast forward time	90 sec. (C-60 cassette tape)
Wow & Flutter	0.05% WRMS
Frequency response	30 – 16,000Hz (CrO_2 tape)
	30 – 16,000Hz (FeCr tape)
	30 – 13,000Hz (Standard tape)
Signal to noise ratio	64 dB (Dolby switch ON)
	54 dB (Dolby switch OFF)

Input	MIC: 10k ohms (0.3mV)
	REC/PLAY: 10k ohms (1 mV)
	LINE IN: 60k ohms (60 mV)
Output	REC/PALY: 3k ohms (0.6 V)
	LINE OUT: 3k ohms (0.6V)
	HEADPHONES: 8 ohms
	to 10k ohms (30 mV)
Power source	AC: 110/125/220V, 50/60Hz
Dimensions	17-3/4"(W) x 11-7/8"(D) x 6-1/8"(H)
	(450 x 300 x 155 mm)
Weight	Approx. 13 lbs. 4 ozs. (6 kg)

* Specifications subject to change without notice.

MECHANISM ADJUSTMENTS

(1) Replacement of magnetic heads
Unsolder or solder the head leadwires quickly to avoid any damages of the heads by heat of the soldering iron.

(A) Replacement of REC/PLAY head
Remove the REC/PLAY head (76) by unfastening the two pan head screws (Y3 2 x 8mm) fixing the REC/PLAY head shown in figure one.

(B) Replacement of ERASE head
Remove the ERASE head (77) by unfastening the two pan head screws (Y4 2 x 12mm) fixing the ERASE head shown in figure one.

* See the cabinet exploded view to remove the mechanism chassis.

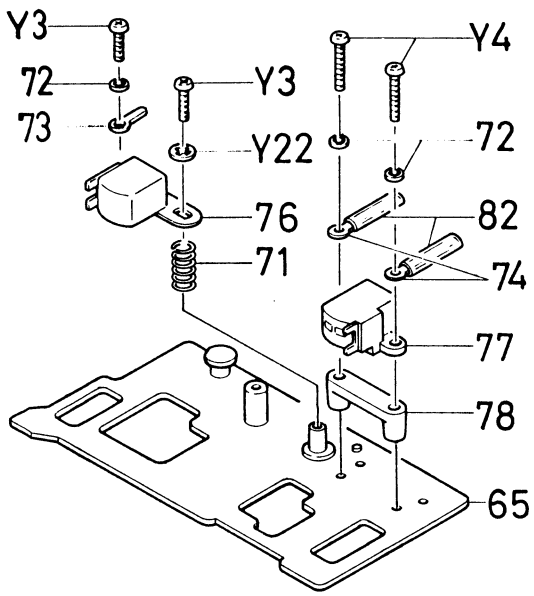


Fig. 1

(2) Head azimuth
Remove the toplid by sliding it upwards.
Load the adjustment tape (VTT-658) and operate the unit in the playback mode.
Turn the head azimuth screw (Y3) clockwise or counter-clockwise through the adjustment hole to obtain maximum LINE OUTPUT as shown in figure two. Repeat the adjustment on both channels and both sides of the tape.

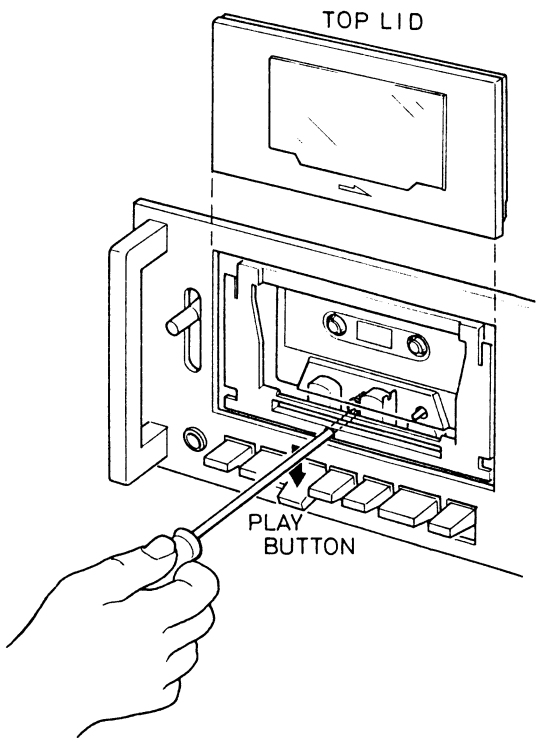


Fig. 2

(3) Torque and tension

(A) Take-up torque

Measure with torque gauge (figure three)

Play	30 ~ 60gr/cm
Fast forward	55 ~ 90gr/cm
Rewind	55 ~ 90gr/cm

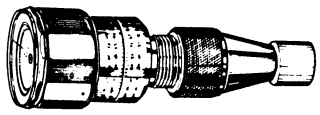


Fig. 3

(B) Back tension

Measure with tension gauge.

To use a tension gauge, make a hole in the side of the cassette as shown in figure four.

Be careful that the tape does not rub against the edge of the cassette; these will make correct measurement impossible.

Play	Less than 5gr/cm
Fast forward	Less than 5gr/cm
Rewind	Less than 5gr/cm

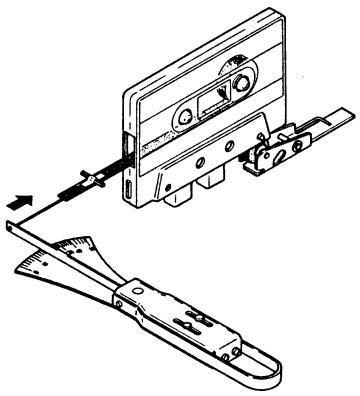


Fig. 4

(C) Tape tension

As shown in figure five, cut off a length of tape. Tie one end to a thread connected to the tension gauge, and leave the other end hanging loose. Operate the unit in PLAY mode and hold the tension gauge steady (do not move it to left or right).

When the tape stops, read the tension gauge.

If this reading is over 100 gram, no adjustment is needed.

If it is not over 100 gram, adjust the pinch roller pressure.

This is done by bending the coil spring 86 (141-2-852T-37600) shown in the mechanism exploded view.

Clean the pinch roller with alcohol only so that tape will not slip.

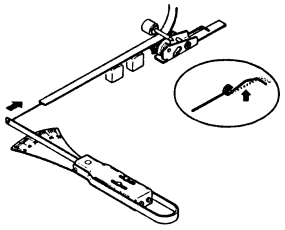


Fig. 5

(4) Tape speed

Remove the cabinet (108) by unfastening the four binding head screws (Y108 3 x 8mm) fixing the cabinet.

Remove the front panel (101) by unfastening the six washer head tapping screws (Y110 3 x 8mm and Y111 3 x 10mm) fixing the front panel.

See the cabinet exploded view for the details. Connect the tape speed counter to LINE OUTPUT terminal (left or right channel) of the unit. Load a tape speed test tape (MTT-111) and operate the unit in the playback mode.

Turn semi valiable resistor of the motor clockwise or counterclockwise through the adjustment hole to obtain 3 KHz ±10Hz indication of the tape speed counter.

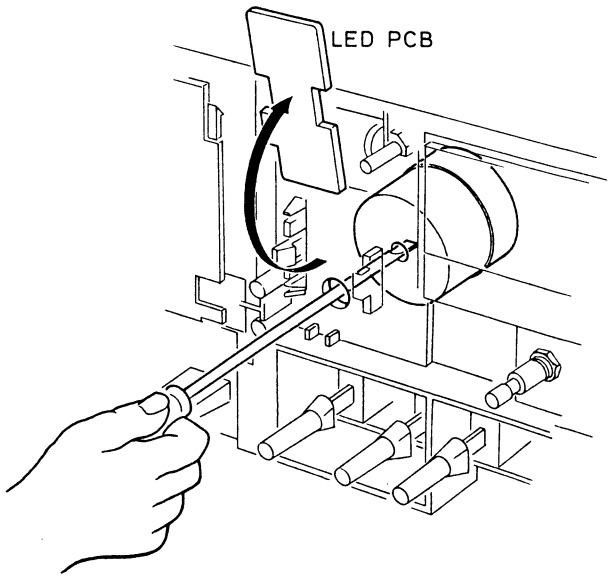


Fig. 6

(5) PAUSE timing

Operate the unit in the PLAY mode (Unload the cassette when making this adjustment).

Press the PAUSE button gradually and bend the arm of the pinch roller, using a pair of pliers, as shown in figure seven.

When properly adjusted, first the pinch roller should stop running and, then, the take-up reel. There should be a clearance of approximately 0.1 0.4mm between the capstan and the pinch roller when the pinch roller has come to a halt.

(a) There should be a gap of approximately 0.1 to 0.4mm when the take-up reel has stoped running. (b) Capstan (c) Pinch roller (d) Leverpinch roller assembly (e) Arm (f) Slide.

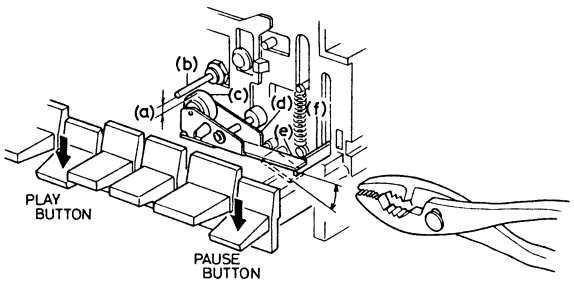
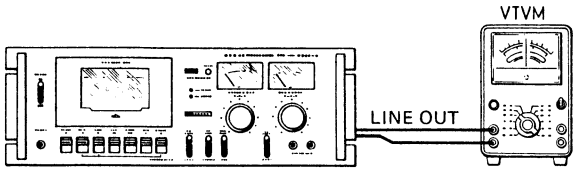


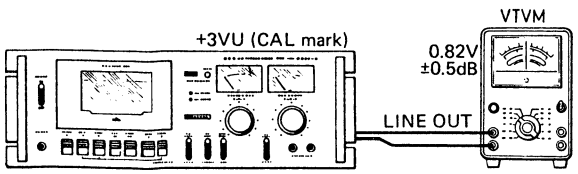
Fig. 7

AMPLIFIER ADJUSTMENTS

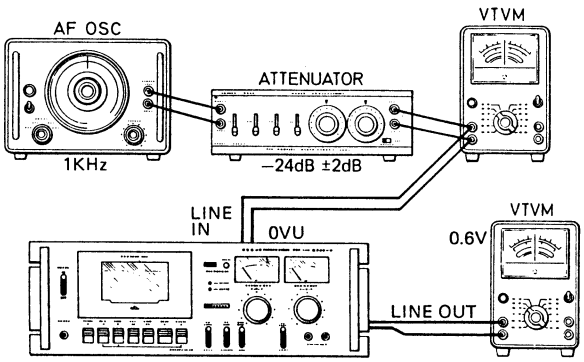
(1) Adjustment of head azimuth
Tape select switches: NORMAL
Dolby switch: OFF
Tape to be used: VTT-658
Adjust the head azimuth screw so that the LINE OUT level becomes maximum.
Repeat the adjustment on both channels and both sides of the tape.
* Adjust the OUTPUT LEVEL control knobs to maximum for the adjustments in steps one through five.



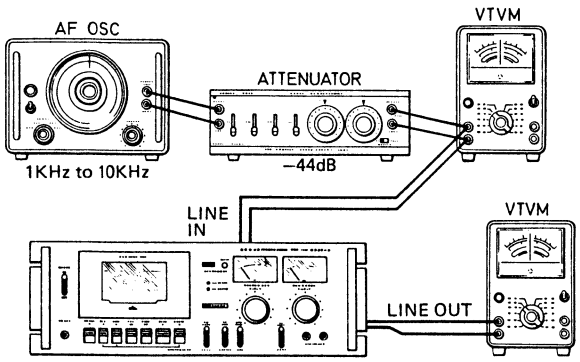
(2) Adjustment of playback ouput
Tape select switches: NORMAL
Dolby switch: OFF
Tape to be used: MTT-150
Operate the unit in the playback mode, and adjust SVR101, 201 so that the LINE OUT level becomes 0.82V ±0.5dB.
Make sure the VU meter indicates +3VU (CAL mark) at same time.



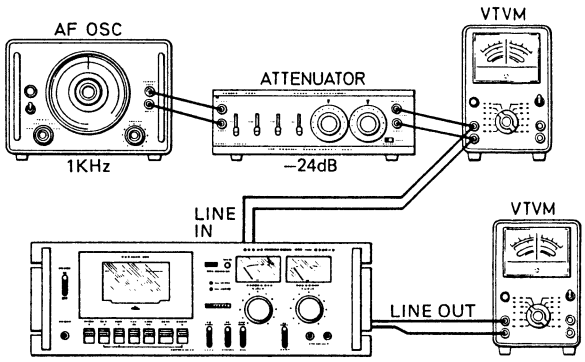
(3) Adjustment of VU meter
Tape select switches: NORMAL
Dolby switch: OFF
Set the unit to the REC, PAUSE state.
Adjust INPUT LEVEL control knobs so that the LINE OUT level becomes 0.6V, then adjust SVR103, 203 to obtain OVU indication of the meter.



(4) Adjustment of REC/PLAY frequency characteristics and bias
Tape select switches: NORMAL
Input select switch: LINE IN
Dolby switch: OFF
Set the input signal level at −44dB (1KHz and 10KHz).
Operate the unit in the recording mode or playback mode, and adjust SVR301, 302 so that the VTVM indication for the 10KHz signal is equal to 0dB (with the 1KHz response as the 0dB reference).



(5) Adjustment of record gain
Tape select switches: NORMAL
Input select switch: LINE IN
Dolby switch: OFF
Set the input signal level at −24dB (1KHz).
Adjust SVR102, 202 so that the monitor output at the time of recording is equal to the record/playback output.

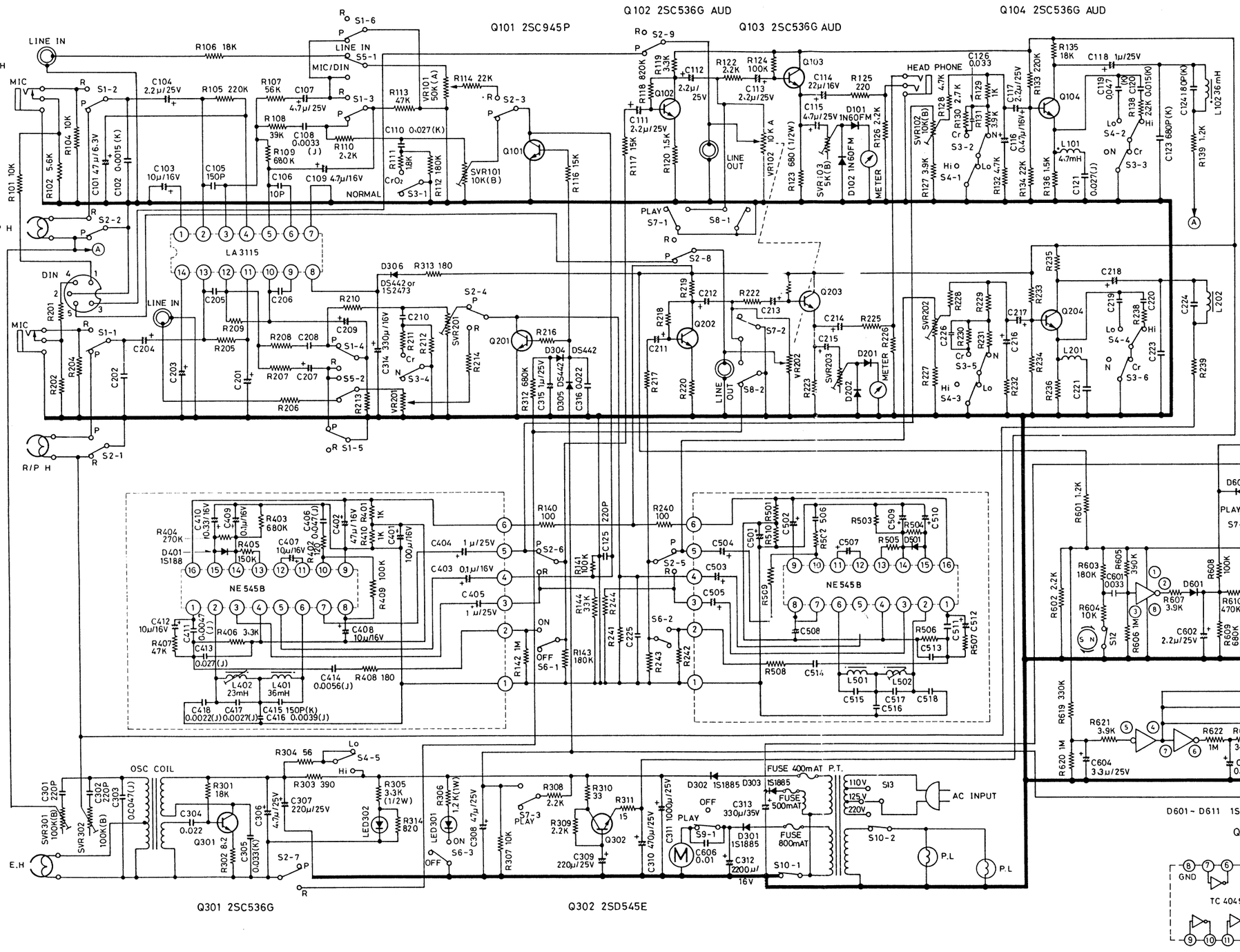


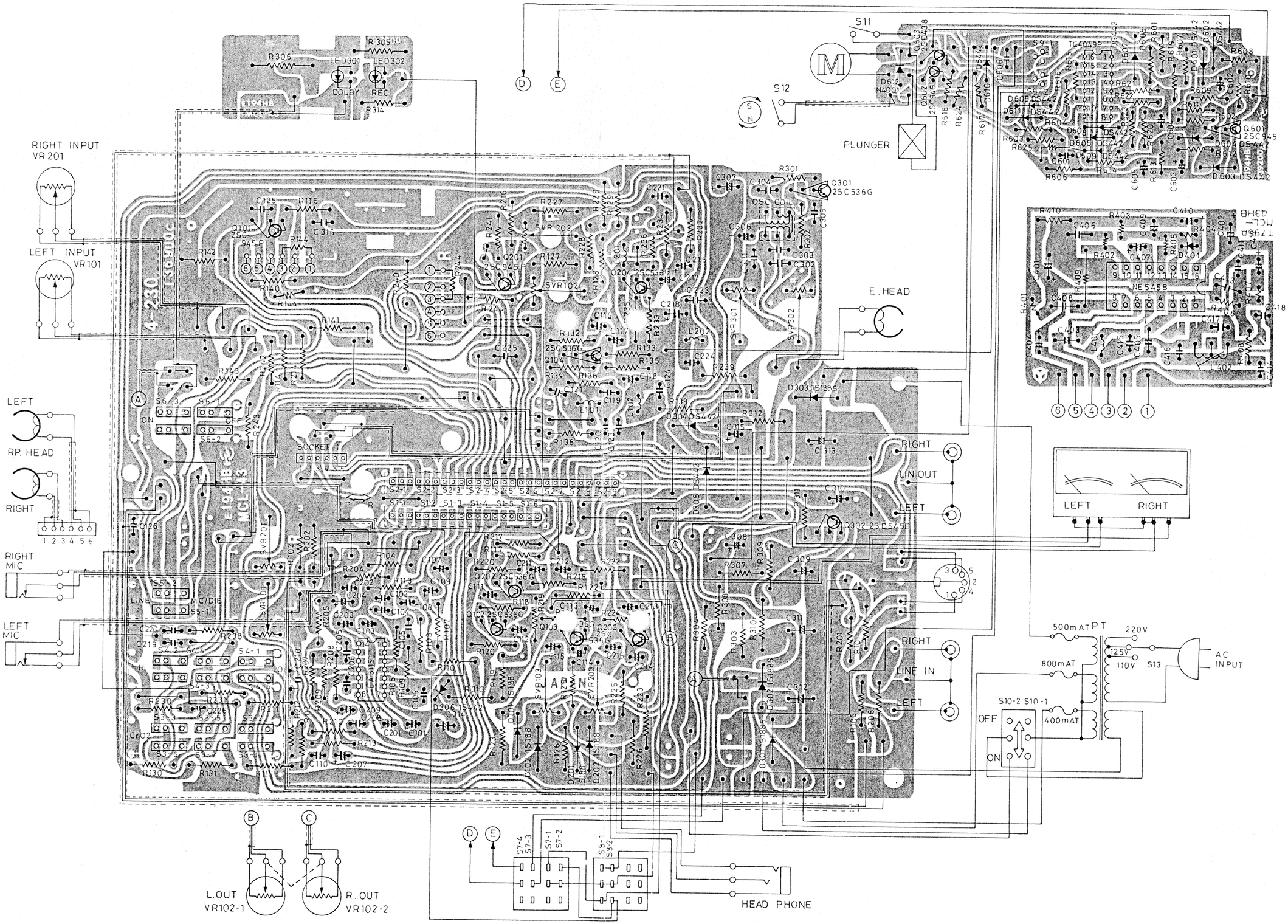
AMPLIFIER ADJUSTMENTS

* Adjust the OUTPUT LEVEL control knobs to maximum for all adjustments.

Items of adjustment	Tape to be used	Points of measurement	Input terminal	Frequency	Input level	Tape select switches	Input select switch	Dolby N.R switch	Input level control switch	Places of adjustment
Head azimuth	VTT-658 (10KHz, −15dB)	LINE OUT				NORMAL		OFF		Re-adjustment of head
Playback output	MTT-150 (Dolby tape)	LINE OUT VU meter				NORMAL		OFF		SVR101 SVR201
VU meter	Blank tape	LINE OUT VU meter	LINE IN	1KHz	−24dB ±2dB	NORMAL	LINE IN	OFF	Adjustment	SVR103 SVR203
REC/PLAY frequency characteristics and bias	Blank tape	LINE OUT	LINE IN	1KHz 10KHz	−44dB	NORMAL	LINE IN	OFF	The position of meter adjustment	SVR301 SVR302
Record gain	Blank tape	LINE OUT	LINE IN	1KHz	−24dB	NORMAL	LINE IN	OFF	The position of meter adjustment	SVR102 SVR202

SCHEMATIC DIAGRAM




RIGHT INPUT VR201
LEFT INPUT VR101
LEFT
RP. HEAD
RIGHT
RIGHT MIC
LEFT MIC
LINE
MIC/DIN
Cr O2
SOCKET
L. OUT VR102-1
R. OUT VR102-2
HEAD PHONE
S11
S12
PLUNGER
E. HEAD
RIGHT
LINE OUT
LEFT
RIGHT
LINE IN
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500mAT PT
220V
125V
110V
S13
AC INPUT
800mAT
400mAT
S10-2 S10-1
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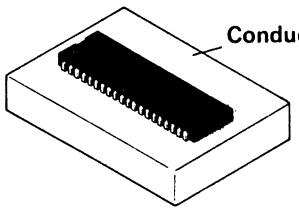
SUGGESTIONS FOR HANDLING LSI AND C MOS

(1) In the case of transit or storage

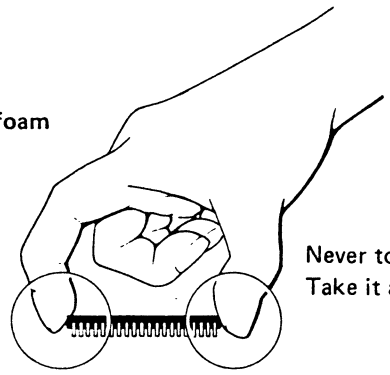
LSI (large-scale integrated circuit) is extremely sensitive and vulnerable to static electricity, and may be damaged if it is exposed to a strong electrostatic field. So, be careful to avoid such a possibility when carrying or storing LSI's. Similar care is necessary in handling C MOS's.

(a) To store the LSI



Be sure to keep the LSI inserted in the conductive urethane foam until it is put to use. (This is for keeping the potential at each terminal equal.)

(b) How to handle the LSI



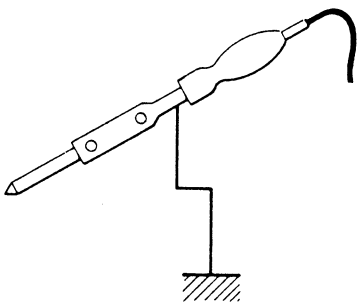
Never touch the LSI terminals. Take it at both ends of the package.

(C) To store the LSI, avoid places where temperature or humidity is high, or where there is a strong magnetic field.

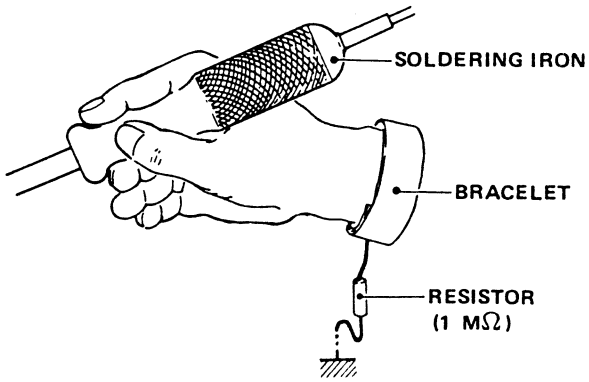
(2) Suggestions for repairing

(a) Before replacing the LSI, be sure to pull out the power plug.

(b) All the equipment, measuring instruments, and tools should be grounded.
Ground the work table by covering it a conductive sheet.



Ground the soldering iron in order to prevent the AC leakage.



The repairman should ground his body electrically by touching the ground line with his hand before he handles the LSI.

(3) Suggestions for replacement of LSI

(a) There is a mark on one side of the LSI. This is for preventing you from inserting the LSI in a wrong way.

(b) If power is supplied to the unit with the LSI inserted in a wrong way, the LSI must be discarded. (The LSI may still be good immediately after, but it will break down in the course of use.)